TIME AND EXPENSE SAVED BY STARTER

More Than Pays for Itself in First Year in Saving of Gasolene Alone.

When the electric starter had been developed and perfected it became recognized as a necessary adjunct to a pleasure car, but few considered it necessary to apply it to motor trucks.

People seemed to reason this way: "The driver is paid for his time anyway, and it won't hurt him to do a little cranking." The Reo folk were the first to discover that there was a more important angle to it, that of the owner.

A motor truck starts and stops oftener than a pleasure car, and the saving in time alone is of considerable importance. That is, if the driver could be compelled to stop the motor every time he stopped his truck. But experience proves that he will not, and no method has been found to make him do so, even if the time he would consume restarting from the ground was not more than offset by the cost of gasolene wasted and the wear and tear on parts of the motor.

When the Reo Motor Truck Company turned out the new 1500-pound speed wagon, they applied an electric starter. Reo engineers made a series of exhaustive tests in which it was demonstrated that the starter on a vehicle of this kind will more than pay for itself in the first year in the saving of gasolene alone, not to mention the saving on the motor bearings.

If every driver were careful to throttle his motor down to the lowest speed when he stopped the car it would be different. But here again, he is our of the control of the owner, and the result is the excessive wear and noisiness which are frequently noticed in motor trucks.

When the owner's interests had been considered, it was found that the driver's good will was also enlisted, and as a result it is found that he invariably shows his appreciation of the self-starting device which saves him so much physical exertion by returning a better day's work and a more careful handling of the vehicle.

HEAT TREATMENT IN MOTOR BUILDING

By C. C. HINKLEY,
Chief Engineer, Chalmers Motor Company.

One of the most important but least understood processes connected with the manufacture of the modern motor car, is the science of heat treatment.

The camshaft, which must undergo a great share of the motor strain, is first packed in a gas pipe about three inches in diameter. A carbonizing compound is then poured into the pipe and tamped lightly about the camshaft. After the camshaft is packed snugly away in its steel container the ends are securely plugged with fire clay and the camshaft is ready for the carbonizing furnace.

When the furnace has been stacked high with camshafts the doors are closed and the fire is turned on.

The heat generated in the carbonizing furnaces ranges from 1650 to 1700 degree Fahrenheit and is regulated from a central control presided over by a tender whose sole business it is to keep tab on the temperature and timing. Each job which goes into the fires is registered on a separate card which gives the tender a check on all work in process. Over each furnace is a combination light-indicator with three colored lenses—blue, green, and red. When the blue light shows the temperature is too low and more heat is applied. When the red light shows it is a danger signal, indicating that the heat is too intense. The ideal temperature is indicated by the display of a green light. When all three lights are burning the job is done, and ready to come out of the furnace.

During the process of carbonization a change takes place in the texture of the steel. In direct ratio to the length of time spent in the furnace the carbon compound which surrounds the camshaft penetrates the surface of the steel. The part which is carbonized is called the case, and is much harder than the core, or interior which has not been reached by the carbon. To carbonize the steel through to the core would mean a weakening of the entire camshaft, because the steel would become brittle and lose its resiliency.

After the carbonizing process, the shaft is ready for its first heat treatment to toughen the core. It is again placed in a furnace, this time without its gas pipe protector. Again the fire is applied and the temperature raised to such a degree that the core is made tougher and more capable of standing severe strains. At the correct time, the red hot shafts are lifted from the fire and shot down an incline that gives them a whirling motion as they plunge into a vat of water. This rotary motion assures that all parts will reach the water at the same time, so that cooling will be even.

A third visit to the furnace follows for the second heat-treatment for case hardening and closing the pores.

The last step in the line of heat-treating is a bath in boiling oil. This bath is administered to release any strains or tension which the steel might have undergone in previous ordeals by fire. From the oil vats, the camshafts are taken to the sandblast room. Here a surface scale, which has accumulated on the steel, is removed by means of sand driven through a hose under high pressure.

COMBS MOTOR CO. NEW SERVICE STATION

Recently erected building on L, near Sixteenth street, which will be the home of Combs Service and Repair Department.

CADILLAC "8" SALES REACH 22,500 TOTAL

Retail Value of Cars Shipped During 1915 Is More Than $45,000,000.

The calendar year ended December 31, 1915, marked the largest in volume of business in the history of the Cadillac Motor Car Company. The manufacture and distribution during that period reached the impressive total of 20,406 of the eight-cylinder cars, aggregating in retail sales value more than $45,000,000.

Including the eight-cylinder cars shipped prior to January 1, 1915, and since January 1, 1916, the total exceeds 22,500 cars of this pioneer V-type.

Two years ago this type of engine was practically unknown, and since its inauguration by the Cadillac company some twenty makers have abandoned other models and adopted the V-type.

Printing Presses Run By Ford Automobile

The Ford car as mechanical equipment to supply the power for the thriving publishing business, was the development of the big storm which recently visited the Atlantic States. The town of Greenwich, Conn., was in the district hard hit by the storm. The telephone, telegraph and electric power and light wires were, of course, all put out of business.

One of the prosperous, enterprising newspapers of Greenwich—the News and Graphic—without electric power found it difficult, in fact impossible, apparently, to supply its readers with their usual grist of the world's news. The Ford dealer at Providence, Duse Wilcox Flint, heard of the dilemma of the News and Graphic and rushed a Ford to the rescue. With the power supplied by the Ford motor the presses of the News and Graphic were put back into operation and a four-page paper was speedily printed.

The News and Graphic pay a glowing tribute to the Ford in its editorial column for this assistance in the time of dire need.

"We Are Starving." Says German Letter

NATCHEZ, Miss., Jan. 22.—Mrs. Ben Geisenberger, of this city, is in receipt of a letter from her sister in Germany. The letter came through the regular mails and was censored by the authorities. The letter tells that all are well, that they have had abundant crops and are looking forward to victory.

The letter mentions the stamp on the letter and says it is a new war tax imposed by the government. This stamp, so the letter says, will be valuable after the war is over, and should be kept as a souvenir. The letter suggests that the stamp be removed with water in order to preserve it. When Mrs. Geisenberger followed these instructions and removed the stamp she found written under it the German words, "We are starving."

Old Guard Selects Its Organization Officers

John Middleton has been elected captain of the Old Guard, an organization having headquarters in the G. A. R. Hall. The other officers of the organization are Richard A. Cook, first lieutenant; W. S. Boyd, second lieutenant; Dr. Thomas Culver, chief of staff; James F. Collins, quartermaster; William H. Hoover, commissary, and Orlando E. Caruana, adjutant. James E. Richmond was appointed first sergeant.

Blast Rocks Philadelphia.

PHILADELPHIA, Jan. 22.—The explosion of a leaking gas conduit here threw a score of persons from bed early today, smashed hundreds of windows and hurled manhole covers high in the air. No one was injured.

Slang Fables of MotorDom

The Fable of the New-Fangled Sons

By MONTE W. SOHN.

Once upon a time there was an Old Hick who had Seven Hundred Acres, Three Grown sons, and a Dutiful Wife.

Every year he used to Round Up a Flock of American Eagles and they Multiplied to such an extent that at the Opening of the present chapter he was the Staunchest Pillar in the Local Bank.

He Loved his Family devotedly. He thought Nothing was Too Good for them and so he Gave it to them Freely. In the Spring, when the First Mortgage Crops were Good, he used to get Extravagant. It was his custom at that Period to Select Three New Seven Dollar Suits for the Boys from the Latest Chicago Catalogue and Mother received an Appropriation of Ten Peans with which she could retrim her Hat and Purchase several Bolts of Modish Calico.

Each Morning, the Family Stole a March on Old Sol and Chanticleer, and By the time Breakfast was in the Offing, the Cows had been Milked, the Milk Adulterated, the Chickens separated from their Unhatched Offspring, the Wood cut, the Stables Rehabilitated, the Stock properly Underfed, the Water brought up from Neighbor Smith's spring and other Minor Chores attended.

Through the Day the Boys had Nothing to Do but Plow or Sow or Reap—about Fifteen Acres apiece—as the Season might be, till Old Sol did his Dive. And although Mother's Part was a Small One, (Making Beds, Cleaning House, Cooking, Managing the Chicken Farm, Mending, Darning, Washing, Ironing, Baking, Preserving and Coaxing the Five-Acre Truck Farm), she was Only a Woman and therefore ready for the Hay at 7 P. M.

One Day, the Local Grocer from whom Father Bought his Canned Goods, Put it Over on the Old Geezer to the Extent of $2.65. Father tried to Recoup, but the L. G. Pulled into his Shell, and there was Nothing Doding. The Net result of the Campaign was a Large and Juicy Six.

Two weeks later Poppa did a Croak, the Sum of a Broken Heart.

The Family was Prostrated with Grief for Full Two Days, but after Father's Headstone was Engraved in Old English the Boys Resumed their Sowing, beginning at the Grave and Continuing in a Southerly direction as far as the Apple Orchard.

Six Months Sizzled down the Cinder Path of Time, and Things began to Happen in Augmented Happs. The Neighbors had long Suspected that the Boys were Worthless Critters and Now that the Old Man was Dead their Wickedness began to Assert Itself.

Early in May, the Neighbors saw Three of them New Fangled Automobile Trucks at the Station, and the Postmaster told them The Boys were the Consignees. You couldn't fool the Neighbors. It was easy to See that the Boys were Just Trying to save themselves some Work. They thought they were Better than their Father.

To make Matters Worse, Two Big Engines with Wide Iron Wheels began to Run Around on the Farm. Neighbor Walters reckoned they were a Couple of Second Hand Automobiles the Boys Bought to do the Plowing.

Eight more Hired Men began work around the Place and in Three Months, Six Big Automobile Trucks used to Leave for the City every Morning, and the Boys sold the Horses to some Little man with a Black Mustache.

The Neighbors Knew it couldn't Last. The Boys were Just Throwing the Old Man's hard earned money away. But the New House up on the Hill was finished, and the man who was Building it told the Postmaster he got Paid in Advance.

The Boys got to Running Around in a Red Passenger Automobile and their Mother warn't no better. She hadn't no more Respect for the Dead than to wear Black Silk Dresses and let Mary Jones do her Cooking and send her Washing out.

The following Spring, the Boys began to Ship only the Garden Truck to the City, and the Railroad which was Just as big a Fool as the Boys, built a Track in from the Main Line.

That was Four years ago. Today there are 36 Motor Trucks and 24 Passenger Cars in the County, and after the Youngest Boy was Elected to the Legislature, Neighbor Walters reckoned that Mebbe the Boys warn't such fools after all. He Guesses he'll get another one of Them Tractors this Summer.

Moral.—The Old Time Hick is almost extinct. Nowadays he's a Country Gentleman and the Agricultural Department is next to the dope that nothing is truly rural except the big town populace.

MISSISSIPPI STATE SOCIETY GIVES DANCE

Arrangements Also Complete for Banquet — Congressmen Are Present.

Members of the Mississippi delegation in Congress attended the annual reception and dance of the Mississippi State Society of Washington at the Portner last night.

In the receiving line were Mrs. Percy E. Quin, wife of Congressman Quin, Mrs. W. W. Venable, wife of the recently elected member from Mississippi, Miss Vardaman, daughter of Senator Vardaman; Mrs. Charlton M. Clark, wife of the president of the society; Mrs. James U. McCormick, Mrs. Charles V. Petty, Mrs. Harry Peyton, and Mrs. Walter P. Ramsay.

The committee in charge consisted of George W. Potterton, Thomas Peyton, Walter S. Irwin, Mrs. McCormick, Mrs. Virginia Whittaker, and Miss Hermia Guyton.

The banquet of the society will be given at the New Ebbitt on February 26. Congressman Benjamin G. Humphries will be toastmaster.

Meetings Are Held by Committees of Y. W. C. A.

Mrs. John D. Hird presided at the meeting of the gymnasium committee of the Y. W. C. A. yesterday afternoon, and Mrs. Fred E. Wright presided over the meeting of the girls' work committee held at the same time.

Attention was called to the new English class organized Wednesday evening. Twelve girls registered for the first meeting.

Under the direction of Miss Miriam Barstow, membership secretary, many new members are being secured. The association now has a membership of 3,500, and a steady increase is seen. Mrs. Woodbury Pulsifer is chairman of the committee on membership.

MOTORCYCLE SALES TO BE HEAVY IN 1916

Machine Is Making a New Place for Itself as Everyday Carrier.

"All the indications are that 1916 is going to be a great motorcycle year," says a representative of the Indian motorcycle in this city.

"The machine is making a place for itself as an everyday carrier for salesmen, telephone and telegraph linemen, superintendents of laborers, and men in all sorts of business who find it a fast machine to cover large territory and unquestionably much lower in cost of operation than other kinds of vehicles.

"Those familiar with the designing of the gasolene engine know that the most recent movement has been in favor of motors with comparatively small bore, but a very high number of revolutions per minute, resulting in increased power without burning up so much gasolene as in the large cylinder engines.

Can Go 70 Miles An Hour.

"You will find a good example of high power and low gas consumption in the new Indian Powerplus motor, which turns 2,490 revolutions to the minute at ordinary speed and develops on the dynamometer test 15 to 18 horsepower. This power is transmitted to the rear wheel by three different gear arrangements—high, low, and intermediate—so that the machine will accommodate itself to hills or straight going without ever losing the high-efficiency of its engine.

"One of the Powerplus machines right out of the crate will do seventy miles an hour. It will haul a sidecar with passenger or a loaded parcel car at the rate of forty miles an hour, which is one of the reasons for its growing popularity with rural free delivery carriers and other forms of business delivery.

"A motorcycle can be driven for a year at a cost of from $25, which the New York police machines require for upkeep, to $65 in private service, and this means paying for all gasolene, oil and tires used, and repairs. City government operation is low, of course, by reason of the fact that the city buys gasolene in carload lots and can economize over private resources. At $65 a year an owner can have 15,000 miles of service out of his machine.

Sale of Machines Ahead.

"In foreign countries the cost of petrol or gasolene has been going up so that motorists have been turning more and more to the two-wheeler or three-wheeler when the motorcycle takes on a sidecar. The shipment of the Hendee Company alone to countries outside the war zone for the three months of October, November and December amounted to more than the whole business with these countries for twelve months before.

"The sale of Indian machines at the present time in the United States is also far ahead of the number of machines sold a year ago at this date."

Falsetto Voice Changed To Baritone by Cough

NEW YORK, Jan. 22.—By the simple process of repeatedly coughing and clearing the throat a person with a falsetto voice may change it to a baritone if he persists in the treatment successfully carried out by Dr. Frank Mead Hallock, assistant physician of the department of neurology of the Cornell University Medical School, in the case of a telegrapher, who never before had spoken in a normal register in his thirty-five years.

Discussing his method of treatment in the Medical Record, Dr. Hallock said he tried the patient with the piano, but his musical ear was defective and he sang descending notes in a falsetto.

"Suddenly an idea came to me," the physician said, "and I asked him to clear his throat and made him repeat this several times while I listened carefully. In that noise of clearing his throat I heard the man's natural voice. I requested him to cough and clear his throat again and again. The natural voice was evident to me at the very end of the coughing noise.

"I saw him every day for about a week, and then less and less often. His normal voice was thoroughly established, a good manly baritone. One day, however, a couple of months from the time I began with him I asked him to speak again in the old way. He was unable to utter a sound in the falsetto; he had forgotten how."

Anti-Suffragist Bridge Party Being Arranged

Members of the District Association Opposed to Woman Suffrage are to be entertained at a bridge party at the residence of Mrs. James W. Wadsworth, jr., on February 9. Plans for the party were discussed at a meeting at the residence of Mrs. Douglas Putnam on Wednesday afternoon. The following committee appointments were made: Miss Josephine Patten, membership; Mrs. E. Rollins Morse, entertainment; Mrs. George Puller, statistics, and Mrs. Joseph M. Stoddard, press.

THE RADIATOR

There are a good many Pikers in the world. No word more aptly describes them than this peculiarly fitting idiom. The man who first said "you never get anything for nothing in this world" was not acquainted with the Piker, who not only accepts considerations without thought of return, but makes his a life-quest of imposition, with Everyman the goat.

And now he is abroad among motorists. Each week—although not a member—he obtains touring or other information from the offices of the local A. A. A. In many cases the Piker has called on Secretary Ullman half a dozen times seeking touring directions, but since officials at the local club are courteous, he has no qualms about returning again and again. This practice is about as cheap a form of petty graft as may be found outside of the penal code.

If any man who owns a car is so roadwise that he does not need the club—and he is rare—certainly a membership in it means nothing to him. But if he is average, like the rest of us, he does well to join the club, and he can far more easily afford to spend $5 a year for membership than to get stuck in some Chappawamsic Swamp, or by grafting information from it, come into motordom's category of Pikers.

Relay, Md., one of the smart little suburbs of Baltimore, is indebted to the Baltimore and Ohio railroad for railroad facilities. But the engineers who built this part of the great system located the station near the foot of a main road through the town, which is much traveled by motorists journeying between Baltimore and Washington.

Approaching these tracks from the Baltimore side, there is a steep grade, winding down to the tracks and offering no warning to Washington-bound motorists.

Not long ago a party which had been spending the Sunday at Baltimore returned via Relay. It was about 9 p. m. when the dangerous, twisting downgrade was reached. Knowing the hazard of the crossing below, the driver slowed down to about four miles an hour. Reaching the bottom, the party was astonished to see the big black bulk of a freight train moving slowly over the crossing, the gates down, but only the car's own lamps to show what was ahead, neither lantern nor bell of warning.

Maryland has contributed handsomely in the matter of good highways. She is to be praised for her efforts to make the travel of motorists so much more pleasant than most of her sister States. But Maryland can't do it all. Neither can her very progressive motor clubs.

This is decidedly an issue to be settled by the Baltimore and Ohio. When?

The Bulletin of the United States Geological Survey for 1915 is interesting. Two hundred and sixty-seven million four hundred thousand barrels of petroleum were marketed during the year just ended. More than twenty million barrels were put into field storage, and on January 1 the pipe line companies are estimated to have had in excess of 190,000,000 barrels on hand, an approximate increase of 50,000,000 barrels over the "on hand" figures at the close of 1914.

Wherefore the "gasolene shortage?" Mr. McAdoo, please write.

During the American Revolution, before the Good Roads movement had gotten a fair start, England was severely handicapped by poor highways and the fighting spirit of '76. In this latter day of education and uplift, however, the roads are splendid, and an invading power, be it England or any other, would find our latchstring out and our fighting spirit made over into a national doormat, with "Welcome" on the top and the bristles on the bottom.

Motorists may take great pride in the automobile reserve. It is splendid to know that such a tremendous number of cars are available to Uncle Sam at an hour's notice. But what are we going to put in them?

The experiments with the hydromotor at the Panama-Pacific International Exposition were successful enough to prove that a land and water automobile was a practical possibility. During the closing week of the exposition, six voyages were made on San Francisco Bay and once the automobile launch ventured out of the yacht harbor.

According to the present plans of the builders, four models are to be offered. A two-passenger roadster, a seven-passenger touring car, a light delivery truck and seven-passenger limousine. The same chassis it to be used for each type of body. The limousine is to sell for $3,000 and the roadster at $2,000, with the touring car and truck coming between these figures.

The machine shown at the exposition weighs 3,000 pounds. The body is of aluminum. All the joints are made watertight. To insure this condition, two-inch brass bands are riveted to the edges. The length of the car is sixteen and one-half feet. In the water the machine is propelled by a sixteen-inch screw propeller. The wire wheels measure forty-two inches in diameter.

In the water a patented bronze sliding device locks the water out of the axle housing.—Motor Print.

And next? A Hydroaeromotor probably, with wings and fins and wheels.

M. W. S.

Rescuer Drowned.

LATROBE, Pa., Jan. 22.—In a heroic attempt to save the lives of four persons drowning in the Bradenville reservoir, James Shanefield was dragged beneath the ice and perished. His body, with those of the two girls and two boys he tried to save, was recovered early today.